

# Infantile Paralysis and the Filthy Fly

**Scientific Investigations That Prove the Common House Fly Man's Deadliest Enemy---How It Spreads the Cruel Disease Now Crippling New York's Children, Destroys 75,000 of Our Babies Every Year, and Scatters the Germs of Typhoid, Tuberculosis and Other Deadly Plagues**

It has already been proved beyond question that the filthy common housefly is the greatest enemy of human life in this country.

Picking up deadly disease germs with its sticky, hairy feet, in the filthiest and most disease-laden places imaginable, it carries them into our homes and deposits them upon our faces, upon our lips and in our food. Not content with this,

it also discharges germs upon us from its interior.

Such horrifying facts are proved by science, but it remains to drive the lesson home among the people until the house-fly is practically extinct. A campaign against the

fly is carried on by every health board in the land, but the education of the average citizen is most imperfect.

In spite of health campaigns, meat, fruit, vegetables and other food are continually exposed in front of stores and on push carts to the contamination of the disease-laden fly. Soda water, candy and ice cream are sold to adults and little children from stands and push carts, where the fly has been permitted to deposit his filth and infection on them. At the same time glasses imperfectly washed are passed from mouth to mouth, so that infection may be more thoroughly spread.

One thing that every citizen can do is to screen his house absolutely against flies. The next is to see that no flies breed; this can easily be accomplished by protecting from sunlight all garbage and refuse. The third is to kill all flies that get into his house.

The evidence that flies carry the virus of infantile paralysis, which is now crippling New York's children, should be ample reason for fighting these pests till they are extinct. But this is only one of the many diseases now traced to them.

Take the children's ailment generally known as "Summer complaint." It is this disease which makes the second Summer the most deadly period of child life and the terror of all experienced mothers.

A thorough investigation by the New York Health Department has just demonstrated that there were twice as many cases of Summer complaint among children exposed to flies as among those protected from them by screens.

The investigation was carried on by the Health Department in combination with the Bureau

of Public Health and Hygiene of the New York Association for Improving the Condition of the poor. It was conducted exclusively on infants under one year of age. The sanitary condition of the dwellings was noted. The cases were then divided with scrupulous care into a fly-protected group and a fly-exposed or "control" group. The infants were visited every five days by twelve nurses. The fly-exposed cases received all the instruction usually given in child hygiene work, but no especial emphasis was laid on eliminating the house fly. Where sickness was found the nurses did all in their power to see that the child had proper treatment and visited the case daily until it was well.

In the fly-protected group, on the other hand, the greatest emphasis was laid on the screening of the baby. Previous experience in fly campaign work had demonstrated that the effective screening of windows in the poorest homes was entirely practicable. For the infant in the cradle, in the go-cart, on the bed, and even in arms, the constant use of netting was insisted upon. Over a thousand yards of netting was distributed among the protected families. Likewise the covering of food; the removal of food scraps, the washing of soiled baby clothes, was urged on the families.

Three supervisors constantly in charge of the work visited each fly-protected case each week, gave extra instructions for preventing fly infection and distributed fly paper. Several carefully prepared types of fly literature, richly illustrated with effective cartoons, was another method of reaching the families in which protective measures were taken. Both nurses and supervisors recorded on every visit the health of the infant and the use or neglect of netting over the infant. In addition to this, the nurse made record of exposed food or milk, of feeding methods and of the cleanliness of the homes.

The records were most carefully compiled, and were studied from the point of view of flies, of home sanitation, of feeding methods, of temperature, of humidity conditions, nationality, etc. The results recorded were as follows: Almost twice (1.9) as many infants were attacked by Summer complaint among fly-exposed as among the fly-protected infants. Influences other than flies and artificial feeding associated with a dirty home and designated as the dirt factor, play a similar part in connection with this disease. Almost twice (1.8) as many infants were attacked by Summer complaint in dirty homes as in the clean ones.

Typhoid fever, one of the most serious diseases to which man is subject, is communicated by flies to a greater extent than in any other way. Other diseases conveyed by this pest are tuberculosis, anthrax, plague, trachoma (an infectious eye inflammation), septicemia (blood poisoning), erysipelas, and leprosy. There is some reason for believing that smallpox is similarly communicated.

As a direct pest it is a source of great annoyance, necessitating, with the mosquito, an estimated annual expenditure in the United States

Ultra-Microscopic Photograph of the Tongue of the Fly, With Which It Collects Filth and Germs and Distributes Them by Regurgitation, Not Only on Food and Household Utensils, But Directly Into Mouths and Noses. The Infection Can Also Be Carried by Hands on Which Flies Have Rested.

alone of more than \$10,000,000 for the screening of houses.

The common house fly lays its eggs entirely in filth of the worst kind. As a rule, it only deposits the eggs in the sunshine, and hence screening refuse is an effective remedy against their breeding. Fly breeding time is in Summer, and the race is only kept alive in cold climates through the Winter by a few individuals that linger in exceptionally warm places.

It has been carefully calculated that one fly can have five million million descendants in a season. Each is capable of carrying death to a man. Five thousand babies die every year in New York from fly-borne diseases. Seventy-five thousand of them die in the United States from the same cause. The shortening of life caused by fly-borne diseases in the United States is equivalent to 4,000,000 lives annually.

Flies spread disease in two ways: They ingest the deadly germs of enteric diseases, such as typhoid fever, cholera, infantum and tropical dysentery, and deposit them hours, or even days, later in fly specks in various articles of food.

These germs are also collected, however, on the feet of the fly and later adhere to food over which the fly crawls in its travels.

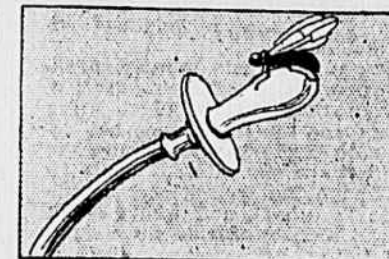
The number of bacteria on the foot of a single fly may range all the way from 550 to 6,600,000! Early in the fly season the numbers of bacteria on flies are comparatively small, but later the numbers increase prodigiously. Drs. Esten and Mason, of the Connecticut Storrs Experimental Station, captured 414 flies and subjected them to bacterial examination. It was found that there were an average of 1,250,000 bacteria on each fly.

The method of their experiment was to catch the flies by means of a sterile fly net, introduce them into a sterile bottle, and then pour into the bottle a known quantity of sterile water. The bottle was then shaken to wash the bacteria from their bodies and the water subjected to bacteriological analysis.

Once the germ-carrying facilities of flies are thoroughly appreciated, it is easy to understand what a serious menace to the health and lives of the community the pest is. Carrying millions of disease-germs at all times, flies frequent kitchens and dining rooms and deposit their filth on food and food utensils, thus distributing the germs they have collected everywhere they go.

We have learned that the infantile paralysis virus is carried both in the gullet and on the feet of the common house fly. Experiments have also been made to show that the common stable fly conveys this disease by its bite, much as the mosquito carries malaria and the tsetse fly sleeping sickness.

## Six Ways the Disease Is Disseminated



The Fly on the Nipple of the Nursing Bottle.



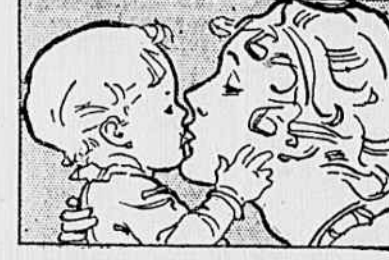
The Fly on the Baby's Lips or Nose.



Careless Washing and Drying of Drinking and Eating Utensils.



The Drinking from Unclean Glasses.



Indiscriminate Kissing of Children.



The Childish Exchange of Confections.

## Screen Your House to Save Your Children

By Dr. Woods Hutchinson

TWO simple steps which can be taken by everyone will prove a sure magic against flies. Screen them out of the house; kill every one that breaks in. Leave no dirt for them outside to breed in and feed on.

The first ingredient in this fly magic, screens, is the most important, because everyone can get them and they would almost do the work alone. This means screens on every window, every door, every opening in the house, not forgetting one over the top of the chimney, if unused; not screens on the front of the house and none at the back; nor wire screens over the windows of the best bedrooms and ragged cotton mosquito bar for the boys' room or the hired girl's attic.

Screens should go on early to keep in the flies that have wintered inside the house until they can die of old age or be slaughtered, and be kept on late well on toward the first snow, in order to keep out the flies

who are seeking shelter from the cold. Be sure to have screens on every opening, even your cellar, even over the mouths of the coal shutes, for this is one of the favorite winter harbors not only of flies but also of mosquitoes.

The second step is to slaughter without mercy all that sneak into the house. The real fly time for business purposes is right now. The race of flies, like bumble bees, is perpetuated by single individuals who hibernate through the Winter and when the warm weather comes, buzz feebly forth to get food to develop within them, the eggs from which will be hatched the season's brood.

If all houses are screened so that flies cannot get at the sick people, or that those who become infected from typhoid or intestinal disease, are delayed by screens so that they can be killed before they get out of the house, there will be vastly less chance of their spreading disease.

A Greatly Enlarged Photograph of the Common House Fly, and Below It an Ultra-Microscopic Picture of Its Foot on Which It Can Carry as Many as 6,600,000 Disease Germs of All Kinds, Including the Virus That Causes Infantile Paralysis and the Microbes of Other Deadly Diseases.